UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,985	09/20/2001	Shekhar Ambe	108339-00030	9886

32294 7590 09/07/2005		EXAMINER
SQUIRE, SANDERS & DEMPSEY L.L.P.		SHAH, CHIRAG G
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TYSONS CORNER, VA · 22182	2664

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		09/955,985	AMBE ET AL.
		Examiner	Art Unit	
		Chirag G. Shah	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>6/16/05</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-3 and 6-8</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>4 and 5</u> is/are allowed.

6)☒ Claim(s) <u>1-3 and 6-8</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>20 September 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The abstract to overcome length informality filed on 6/16/05 has been accepted by the

Examiner.

2.   The 35 USC 112 for insufficient antecedent basis for claims 1 and 6 have been

withdrawn based on the amendment with respect to claims 1 and 6 filed on 6/16/05.

3.   Applicant's arguments filed 6/16/05 have been fully considered but they are not

persuasive.

With respect to claims 1 and 6, Applicant argues that Coden and Breyer fail to disclose or

suggest forwarding the incoming data packet to at least a second switch of the series of network

switches, on a stacked connection operating at a first data rate, based on the stack tag and egress

port.

Examiner respectfully disagrees and redirects Applicant to Coden reference, specifically

to fig. 1 and col. 5, line 67 to col. 6, line 6. First of all, Coden discloses in col. 5, line 67 to col.

6, lines 6 of forwarding the incoming data packet from at least one ring port of one switch to

another ring switch coupled to the at least one ring port based on the address table. Furthermore,

Coden clearly establishes the series of network switches in a ring network since ring switches

104-1 through 104-N are coupled together by a transmission medium that interconnects the ring

interfaces of the ring switches. According to col. 8, lines 9-34 the switches in fig. 1 operate at a

first rate of either 1, 10 or 100 Mbps. The switches operate and forward based on stack tag and

the egress port, see col. 9, lines 35-53 and col. 11, lines 10-16, such that when a packet enters a

ring switch, the ring switch looks at the identification number for the packets, and determines

where to switch this data packet by determining whether the destination address of the incoming

data packet is in the address tables for any port of the ring switch, thus the egress port is

determined based on the resolving stack tag of the destination address from the address table

enabling the incoming packet to be forwarded to the egress port of the switch of the series of

network ring switches.

With respect to claims 1 and 6, Applicant additionally argues that Breyer fails to disclose

or suggest remodifying the header of the packet when the egress port is one of a series of data

ports of a particular switch.

Examiner respectfully disagrees and redirects Applicant to Coden reference, specifically

col. 9, lines 35-53. Coden clearly states that a counter is appended to the packet at its originating

ring switch and thereafter each subsequent ring switch (in a series having egress ports, see fig. 1)

that processes the packet increments the counter for the packet clearly suggesting and

establishing that the identification number or the counter, which are appended/added to the

packet in the original switch are remodified at the header of the packet as the packet is processed

by the subsequent ring switches of fig. 1. Remodification takes place at the header since the

identification information is stored and added/appended in the header of the packet. Therefore,

Coden clearly establishes the limitation of remodifying the header of the incoming packet when

the egress port is one of a series of data ports of a particular switch of the series of switches.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., remodifying a packet header when attaching the counter or identification number when an egress port is one of a series of data ports of a particular switch of a series of switches) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Even though Applicant argues that Examiner fails to disclose a limitation not claimed, specifically, remodifying a packet header when attaching the counter or identification number when an egress port is one of a series of data ports of a particular switch of a series of switches. Examiner respectfully points out the fact that the counter or identification number being attached or updated as disclosed in col. 9, lines 35-53 to the incoming packet clearly serves as the packet header being remodified at each subsequent switch. This is evident since the identification information in the packet is located in the header of the packet.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1-2 and 6-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Coden

(U.S. Patent No. 6,154,462) in view of Breyer et al. (Switched, Fast and Gigabit Ethernet",

XP002199222"), hereinafter referred as Breyer.

        Regarding claims 1 and 6, Coden discloses in **fig. 1** of a method of handling data packets

in a series of network switches **[network switches connected in series 104-1 to 104-M via ring**

network as in fig. 1], said method comprising the steps of:

        receiving (at port within ring switch) an incoming data packet at a data port of a

first switch of said series of network switches **[as disclosed in fig. 1; col. 3, line 35-37;**

col. 9, lines 19-35 and col. 10, lines 46-51, the first ring interface reads the source

address as it enters port of the first ring];

        resolving (within the ring switch) a stack tag from a header of said incoming data

packet **[as disclosed in col. 9, lines 35-53, *when a packet enters a ring switch an***

identification number (a stack count is set) is appended, pre-pended or added to the

packet. Thus, **each subsequent ring resolves (a stack) tag from a header of the**

incoming packet that includes an identification number with a counter received

from a previous switch. *The packet header also includes a destination address (as*

suggested col. 9, lines 21-23) and a source address (as suggested in col. 9, ling 59-65).

Each ring which has processed the packet increments the counter for the packet and

each subsequent ring switch resolve the stack tag for the header of the incoming packet

having identification number counter along with source and destination address. **The**

(stack tag) having destination address received from a header of the incoming data

packet is used for determining by comparing with address tables where to switch

the data packet as suggested in col. 11, lines 9-16];

determining (within the ring switch) whether an incoming data packet is a unicast

packet, a multicast packet or an IP multicast packet **[as disclosed in col. 3, lines 40-56**

and col. 11, lines 32-44, *a determination is made whether the port is a unicast,*

broadcast, multicast with higher level TCP/IP protocol. Note: a determination of a

broadcast or a multicast packet is made upon consulting the memory tables and the

*location of the terminal is unkown***]; and**

to search the address resolution lookup and layer three IP lookup tables to find an

egress port for said incoming data packet **[as disclosed in col. 11, lines 9-16 and fig.2,**

the method determines whether the destination address of the incoming data packet is

in the address tables for any port of the ring switch. If the destination address is in one

of the at least one address tables, the method switches the data packet from the ring-in

port to the port (egress) indicated in the address table, resolving the destination address

with the (ring egress) port. This clearly establishes that the switch of fig. 1 is

configured to search the address tables for performing an address resolution lookup

based on the corresponding destination address to find an egress port];

(each subsequent ring switch of fig. 1) modifies the header of said incoming

packet **[as disclosed in col. 9, lines 35-53,** *when a packet enters a ring switch from a*

port, an identification number of the ring switch is appended, pre-pended or added to

the packet];

(a ring switch of fig. 1) forward the incoming data packet to at least a second

switch of the series of network switches **[as disclosed in col. 6, lines 1-6 and see fig. 1,**

data packet received at the at least one ring port that are not destined for a network

device associated with any of the at least one local ports of the ring switch are

switched/forwarded to another ring switch coupled to the at least one ring port based

on the address tables], on a stacked connection operating at a first data rate **[as disclosed**

in col. 8, lines 9-34, *Ethernet switches may operate on 1, 10, 100 Mbps or any future*

data rate], based on stack tag and the egress port *[stack tag includes destination address*

and identification number (for the ring switch) corresponding to incoming packet as

disclosed in **col. 9, lines 35-53 and col. 11, lines 10-16** *and egress port is determined*

based on looking up the address tables for the destination address of the incoming

packet for forwarding to the (egress port) as disclosed in **col. 11, lines 10-16]**.

(each subsequent ring switch of fig. 1) remodifying the header of said incoming

packet when the egress port is one of a series of data ports of a particular switch of said

series of switches **[as disclosed in col. 9, lines 35-53, when a packet enters a ring**

switch from a local port, an identification number for the ring switch is appended,

pre-pended or added to the packet; an identification number for the ring is added to

the packet when packets are received at the ring interface of a ring switch, *Note: col.*

9, lines 45-53 clearly discloses that a counter is appended to the packet at its

originating ring switch, each subsequent ring switch in the network that processes the

packet remodifies the packet header by incrementing the counter for the packet]

Coden, explicitly fails to disclose of one of the address table being a layer three IP

lookup tables.

Breyer discloses of Layer 3 switches on page 187, which are also known as routing

switches or switch routers among other names. Breyer discloses on **page 193, fig. 5.17,** that

upon receiving a frame, the switch having routing features strips off the layer to header to obtain

a layer 3 packet, identifies IP protocol and **performs an address resolution lookup based on a**

layer 3 IP lookup table to find the egress port. Breyer further discloses in the respective

figure that upon determining location of the port, the header of the packet is modified to change

the IP address and add back layer 2 header using routing table MAC addresses and then

forwarding the packet to the (egress) port.

Therefore, it would have been obvious to one of ordinary skills in the art to modify the

teachings of Coden's invention to include the teachings of the layer 3 switches configurable to

perform layer 3 IP lookup tables as taught by Breyer. **One is motivated as such in order to**

route IP protocol and forward frames at wire speed rates such as 10, 100 or 1000Mbps with

minimal latencies *(Breyer, page 194).*

Regarding claims 2 and 7, Coden discloses in **col. 9, lines 35-45**, wherein said step of modifying the header of said incoming packet comprises adding or removing a stack tag to or from said header to be evaluated by said particular switch **[as disclosed in col. 9, lines 35-45, an identification number for the ring is added to the packet when packets are received at the ring interface of a ring switch,** *Note further: col. 9, lines 45-53 clearly discloses that a counter is appended to the packet at its originating ring switch, each subsequent ring switch in the network that processes the packet by incrementing the counter for the packet establishing that adding/incrementing the counter tag to the header of the packet is evaluated by a particular switch*].

6.   Claims 3 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Coden in view of Breyer et al., hereinafter referred as Breyer as applied to claims 1, 2, 6 and 7 above, and further in view of Jennings et al. (U.S. Patent No. 6,425,015), hereinafter referred as Jennings.

Regarding claims 3 and 8, Coden in view of Breyer discloses all the limitations with respect to claims 1 and 6 <u>except</u> the steps of: (means) resolving a mirroring field of said incoming data packet, (means) forwarding said incoming data packet to a mirroring port based on said mirroring.

Jennings discloses in col. 3, lines 33-39 of Port mirroring achieved between ports on separate devices in a stack (series) of communication devices. Jennings discloses in fig. 2A of the formation of a data packet with Ethernet protocol including DA (destination address) and SA (source address), which identify the intended destination of the packet and its originator.

Jennings clearly discloses in fig. 2B of adding an extra field RAP (roving analysis port bit) to each communication packet transmitted via the cascade. A control means 216 within the communication device (such as a switch) controls the adding and removing of the RAP field from each incoming packet indicating resolving a mirror field of the incoming data packet. Jennings discloses in **col. 6, lines 9-15** of using the additional field to indicate that a cascade received packet is to be sent/**forwarded to the mirror port.**

Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention to modify the teachings of Coden in view of Breyer to include the limitation of inserting a mirror field within the header of an incoming packet and forwarding the received packet to a mirror port as taught by Jennings. **One is motivated as implementing such in order to monitor traffic (such as volume of traffic on specific port or actual activities of a user of a particular port) passing through specific port or ports in the network** *(Jennings, col. 2, lines 3-14).*

Allowable Subject Matter

7.   Claims 4-5 allowed.

Regarding claim 4, Prior Art fails to disclose wherein the first data port interface is configured to communicate with a second switch at the first data rate and the second data rate interface is configured to communicate with a third switch at the second data rate and the switch is configured to resolve a stack tag from a header of incoming data packet and forwards the incoming data packet to one of the second and third switches based on the resolved stack tag in combination with other limitations set forth in the respective claim.

Conclusion

Any response to this final action should be faxed to:

(571)-272-8300, (for formal communications; please mark "EXPEDITED PROCEDURE)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G. Shah whose telephone number is 571-272-3144. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cgs
August 25, 2005

Ajit Patel
Primary Examiner